tumumab. The current study aimed to evaluate the projected life years (LYs) and quality-adjusted LYs (QALYs) associated with ibrutinib, ofatumumab, and other therapies for treatment of CLL with prior therapy. **METHODS:** A health state model simulated treatment of a cohort of CLL patients who had received prior therapy. Patients were simulated to receive either ibrutinib or ofatumumab until death or disease progression, at which point they received subsequent treatment or best supportive care. Clinical inputs for ibrutinib and ofatumumab were informed by PCYC-1112 trial data (N=391). Long-term follow-up data from PCYC-1102 and PCYC-1103 trials (combined N=101) was used in sensitivity analysis. Long-term OS and PFS were extrapolated from clinical trials to estimate survival outcomes. Utility were informed by published studies. Evaluation of ibrutinib versus other existing agent and emerging agents including idelalisib and ABT-199 was included in a sensitivity analysis. Long-term health outcomes were discounted by 3.5%. **RESULTS:** Treatment with ibrutinib resulted in better health outcomes, incrementally increasing LYs by 0.63 and progression-free LY by 0.87 over a 5-year time horizon compared to ofatumumab, which lead to 0.47 incremental QALYs. In a 10 year time horizon analysis, ibrutinib increased LYs by 0.79. Ibrutinib was also associated with increased LYs and QALYs compared to other existing and emerging treatments. The model results are most sensitive to the approaches used to extrapolate OS. **CONCLUSIONS:** Ibrutinib was demonstrated to yield better health outcomes for CLL patients with prior therapy compared to ofatumumab, largely driven by significant improvements in PFS and OS.

## CANCER – Cost Studies

### PCN41
### BUDGET IMPACT ANALYSIS OF AFLIBERCEPT IN YHE TREATMENT OF METASTATIC COLORECTAL CANCER (MCRC) IN POLAND

Kaczor MP[1], Pawlik D[1], Wójcik R[1], Glasek M[2], Pieczonka A[2], Kraska A[2], Zelazowski K[2]
[1]*Aestimo s. c., Kraków, Poland,* [2]*Sanofi, Warsaw, Poland*

**OBJECTIVES:** To estimate the budget impact resulting from the introduction of aflibercept for the treatment of metastatic colorectal cancer (mCRC) within drug program in Poland. **METHODS:** Analysis was performed in 3-year time horizon (2014-2016) from the public payer (NHF) perspective. Target population is defined as adult patients with mCRC that is resistant to or has progressed after an oxaliplatin-containing regimen (including patients who experienced distant relapse within 6 months of completion of oxaliplatin-based adjuvant therapy). Eligible patient population was estimated by compilation of following data: epidemiological studies, local market study, IMS data, survey among Polish oncologists. Market shares of different regimens (aflibercept 4 mg/kg +FOLFIRI, bevacizumab 10 mg/kg +FOLFOX-4, FOLFIRI) were projected based on the NHF data and experts' opinion. Following cost categories were included: drug acquisition and administration (anti-VEGF, chemotherapy), diagnostics, monitoring and adverse events (grade 3-4). **RESULTS:** With the introduction of aflibercept, estimated annual number of patients starting aflibercept treatment will be 90, 209 and 224 in year 2014, 2015 and 2016, respectively. Total annual expenditures in year 2014, 2015 and 2016 were calculated to be 39.3, 40.3 and 41.2 million PLN in scenario without aflibercept, compared with 37.4, 34.9 and 35.0 million PLN, respectively, with the introduction of aflibercept. In case of aflibercept reimbursement, the NHF would save 1.9 million PLN in year 2014, 5.3 million PLN in year 2015 and 6.1 million PLN in year 2016. **CONCLUSIONS:** The introduction of aflibercept would result in savings for the NHF in Poland, mainly as a consequence of reduced pharmacological costs compared to bevacizumab.

### PCN42
### ESTIMATING THE ECONOMIC IMPACT OF SORAFENIB IN TREATMENT OF LOCALLY RECURRENT OR METASTATIC, PROGRESSIVE, DIFFERENTIATED THYROID CARCINOMA (DTC) THAT IS REFRACTORY TO RADIOACTIVE IODINE (RAI) TREATMENT

Sussman M[1], Munsell M[1], Valderrama A[2], Seal BS[2], Wen L[2]
[1]*Boston Health Economics, Inc., Waltham, MA, USA,* [2]*Bayer HealthCare Pharmaceuticals Inc., Whippany, NJ, USA*

**OBJECTIVES:** Sorafenib, a multikinase inhibitor, received Food and Drug Administration (FDA) -approval in 2013 for treatment of patients with locally recurrent or metastatic, progressive, radioactive iodine-refractory (RAI-r) differentiated thyroid carcinoma (DTC). A budget impact model (BIM) was developed from a United States (US) payer perspective to estimate the costs of adding sorafenib to the set of available treatments in a hypothetical health plan in the RAI-r DTC population. **METHODS:** An Excel-based BIM evaluated costs of RAI-r DTC with other FDA-approved and compendia-recommended treatments using baseline and projected market shares. Clinical inputs included the prevalence of RAI-r, average monthly dosage, and average duration of sorafenib and other FDA-approved and compendia-recommended treatments. Economic inputs for each treatment included the wholesale acquisition cost (WAC) per dose and hospital administration costs per month. A net per-month cost to the payer for sorafenib was $6,872. Laboratory testing costs were derived from product-specific package inserts and the Centers for Medicare & Medicaid Services (CMS) Physician Fee Schedule. Sorafenib market share was assumed to increase from 35% at baseline to 54% at 1 year, with shift from other treatments coming mostly (12%) from clinical trial/no treatment. The duration of sorafenib treatment was 11 months based the DECISION trial. **RESULTS:** An estimated 25 patients with RAI-r DTC were eligible for treatment with sorafenib. Costs increased 25% ($282,467) or $0.02 per member per month (PMPM) from baseline to 1 year post baseline. Sensitivity analyses, varying default inputs for duration of treatment (±2 months) and estimated market share for sorafenib (±10%), showed greatest sensitivity to sorafenib market share (incremental total costs: $180,812–$384,122). **CONCLUSIONS:** Our findings indicate that adding sorafenib to a hypothetical health plan's formulary has a manageable budget impact of $282,467, or a PMPM increase of $0.02, given the small RAI-r DTC population.

### PCN43
### FORECASTING OUTPATIENT PHARMACEUTICAL EXPENDITURE FOR CANCER TREATMENT IN GERMANY

Schoch GG[1], Blank S[1], Tamminga M[1], Steimle T[1], Stargardt T[2]
[1]*Techniker Krankenkasse, Hamburg, Germany,* [2]*University of Hamburg, Hamburg, Germany*

**OBJECTIVES:** To allow budgeting of pharmaceutical expenditure for cancer drugs in Germany, we forecasted future outpatient pharmaceutical expenditure for cancer treatment from the perspective of the statutory health insurance (SHI) for 2016. **METHODS:** Based on data of the Techniker Krankenkasse (TK), a large German sickness fund with more than 8.2 million insured, we forecasted pharmaceutical expenditure for 12 cancer indications in 2016 (according to ICD-10: C16, C18-21, C22, C26.9/C49.9, C34, C43, C50, C56, C61, C73, C90, C91.1). To extrapolate results to whole SHI, we adjusted for differences in demographics of insured between TK and SHI using publicly available data, i.e. KM6 statistics. We also incorporated trends in membership to SHI. To assess the impact of new drugs, we obtained expert opinion by IMS Health on (a) the timing of drug launches in the German cancer market, (b) the expected prices of new drugs and (c) the extent to that new drugs will replace existing pharmaceuticals. For calculations, we assumed that newly launched drugs will reach on average a diffusion of 20% of their market potential until 2016. **RESULTS:** According to our model, SHI outpatient pharmaceutical expenditure for these 12 cancer indications was million €2,780 in 2012, i.e., 9.5% of total outpatient pharmaceutical expenditure. In 2016, we expect annual pharmaceutical expenditure for these indications to increase by 17.2% to million €3,258. Of the 26 new drugs identified to be launched until 2016,10 will at least partly replace existing pharmaceutical treatments. Thus, million €526 of our budget estimate will be due to new drugs, €2,650 million will be due to pharmaceuticals that were already launched in 2012 while €82 million will be due to demographic change. **CONCLUSIONS:** The expected increase in costs for cancer drugs are a financial challenge for German SHI. Whether benefit of new drugs and expected costs can be considered fair value needs to be investigated elsewhere.

### PCN44
### BUDGET IMPACT ANALYSIS OF EVEROLIMUS FOR THE TREATMENT OF HORMONE RECEPTOR POSITIVE, HUMAN EPIDERMAL GROWTH FACTOR RECEPTOR-2 NEGATIVE (HER2-) ADVANCED BREAST CANCER IN KAZAKHSTAN

Lewis L[1], Taylor M[1], Suriya Y[2], Kuanysh N[2], Kaldygul S[2], Ramil A[2]
[1]*York Health Economics Consortium, York, UK,* [2]*Kazakh Research Institute of Oncology and Radiology, Almaty, Kazakhstan*

**OBJECTIVES:** To determine the budget impact of everolimus (in combination with letrozole/anastrozole) as a second-line treatment for ER+ HER2-negative advanced and metastatic breast cancer in postmenopausal women in Kazakhstan. **METHODS:** A cumulative cohort model was developed to estimate the five-year costs associated with introducing everolimus to the Kazakh health care system, with two scenarios: "with everolimus" and "without everolimus". Treatment-specific PFS and OS data were extrapolated from trial data using a Weibull function. It was assumed that data from the BOLERO-2 trial (everolimus+exemestane vs exemestane alone) were representative of everolimus+letrozole/anastrozole and letrozole/anastrozole used in the model. Per-patient drug, health state, adverse event costs were calculated. The per-patient costs were multiplied by the number of patients expected to receive each treatment according to predicted market share, which was split between everolimus+letrozole/anastrozole, letrozole/anastrozole alone, chemotherapy and tamoxifen. **RESULTS:** The within-trial data from BOLERO-2 reported 17 month OS of 74.7% and 67.6% for everolimus+exemestane and exemestane alone, respectively. The utilities reported in BOLERO-2 (data available up to week 78) were 0.67 and 0.70 for everolimus+exemestane and exemestane alone, respectively. The five year results demonstrate that the introduction of everolimus leads to a 12% increase in drug costs, a 2% reduction in pre-progression health state costs, a 1% increase in post-progression health state costs and a 2% reduction in adverse event costs. The net result is a 2% increase in total costs, from T16.97 billion to T17.389 billion over a period of five years. **CONCLUSIONS:** The analysis estimated that, if everolimus were to be introduced to the Kazakh health care market for the treatment of ER+ HER2-advanced breast cancer, there would be a small impact upon overall health care expenditure. An increase in drug acquisitions costs was largely offset by a reduction in other health care costs due to improved disease management.

### PCN45
### BUDGET IMPACT ANALYSIS OF CYP2C19 GENOTYPING TO TARGET VORICONAZOLE PROPHYLAXIS DURING INDUCTION-CONSOLIDATION THERAPY IN ACUTE MYELOID LEUKEMIA (AML) IN THE UNITED STATES

Mason NT, Bell GC, McLeod HL
*H. Lee Moffitt Cancer Center, Tampa, FL, USA*

**OBJECTIVES:** To assess the impact of genotyping acute myeloid leukemia (AML) patients for *CYP2C19**17 gene variant status prior to induction-consolidation therapy from the perspective of a United States (U. S.) payer. **METHODS:** Developed to aid U. S. payers regarding the budgetary impact of DNA genotyping, this model examines the predicted economic outcomes of a hypothetical cohort of 100 neutropenic AML patients under two alternatives: (1) standard voriconazole prophylaxis and (2) genotyping patients for targeted prophylaxis. Published allelic frequencies estimate 27% of the general population may have at least one *17 allele. The presence of the *CYP2C19**17 allele results in more rapid metabolism and clearance of voriconazole, which can lead to underdosing and ineffective prophylaxis on the standard regimen. The incidence of invasive fungal infection is 15% without effective prophylaxis and is reduced to 6.6% upon adequate prophylaxis. Targeted prophylaxis based on genotyping prescribes an alternative drug or higher voriconazole dose in patients with the *17 allele. Further model parameters were taken from published literature and 2014 CMS Laboratory Fee Schedule. **RESULTS:** The average total cost of care for AML patients receiving standard versus targeted voriconazole prophylaxis was $46,795 and $46,385 per patient, respectively. In addition to the $410 saved per patient, the number of invasive fungal infections was reduced from 6.6 to 4.3